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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,949	10/06/2005	Yoshinori Kurosawa	PHCF-04046US	6823

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VIENNA, VA 22182-3817

EXAMINER

WONG, ERIC K

ART UNIT	PAPER NUMBER
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2883

MAIL DATE	DELIVERY MODE
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08/30/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/551,949	Applicant(s) KUROSAWA ET AL.	
	Examiner Eric Wong	Art Unit 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-60 is/are pending in the application.
- 4a) Of the above claim(s) 39-45 and 51-60 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-37 and 46-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/05 and 05/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species 1 in the reply filed on 6/1/07 is acknowledged.
2. Claims 39-45 and 51-60 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 6/1/07.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 29-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Number 6,334,019 to Birks et al (hereinafter Birks) and further in view of JP2002-236234 ('234) as cited by applicant.

Birks discloses in the abstract and figure 2(a), an optical fiber comprising:

- A plurality of air holes (6) around a core (7);
- Wherein air holes are arranged in a hexagonal lattice (column 6, line 60).

As to claim 31, if holes are left using air as a medium, they would be holey fibers.

Art Unit: 2883

However, Birks fails to explicitly disclose air holes in proximity of a connecting end of said optical fiber are filled with a light transparent material made of resin or glass or other material that has a refractive index lower than that of a quartz-based material.

It is noted that such materials (adhesives) are widely known in the art. Index matching or varying the index of refraction to meet their intended design are commonly practiced in the art.

'234 discloses such a material (oil) which has a lower index of refraction than its quartz core.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a resin or glass material on a polished face when coupling two pieces of fibers or ferrules as disclosed by Birks to reduce coupling losses.

As to claims 35-38, Birks in view of '234 discloses the structure as claimed and described above.

5. Claims 46-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birks in view of '234 as applied to claims above.

Birks in view of '234 disclose the invention as claimed including air holes surrounding a core and a sealing portion with UV curable adhesives, however, a quartz-based fine particle is not disclosed. It is noted however, that doping the cladding or portions of the fiber are disclosed and as is well known in the art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to dope a particle to alter the index of refraction to a desired value. Such a particle would have been discovered during routine experimentation to determine an optimal refractive index to reduce and minimize coupling losses.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. United States Patent Application Publication 2004/0151450 to Wadsworth et al.
- b. United States Patent Application Publication 2005/0018986 to Argyos et al.
- c. United States Patent Application Publication 2006/0008218 to Knight et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wong whose telephone number is 571-272-2363. The examiner can normally be reached on Monday through Friday, 830AM - 430PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

//Eric Wong//

EW


Frank G. Font
Supervisory Patent Examiner
Technology Center 2800